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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,275	11/04/2003	Stefan A. Drumm	(AP10560)64098-0991	7032

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EXAMINER	
TRAN, DALENA	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/701,275	DRUMM ET AL.	
	Examiner	Art Unit	
	Dalena Tran	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant(s)

1. This office action is responsive to the amendment filed on 2/10/05. As per request, claims 9-12 have been amended. Claims 9-16 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 16, is rejected under 35 U.S.C.102(e) as being anticipated by Isono et al. (US 2005/0012501 A1).

As per claim 16, Isono et al. disclose method of determining rollover maneuvers in vehicles with four wheels, comprising step: summing the tire contact forces of one vehicle side, and determining when summed value falls below a threshold at the current point of time or in a time extrapolation of the determined course of signals relating to the summed forces (see at least [0504] through [0510]; [0534] through [0538]; [0557] through [0564]; [0635] through [0640]; [0654] through [0658]; and [0814] through [0819]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 9-11, are rejected under 35 U.S.C.103(a) as being unpatentable over Hagan (6,327,526), in view of Faye et al. (6,494,281), Welch et al. (5,922,039), and Isono et al. (US 2005/0012501 A1).

As per claim 9, Hagan discloses method for determining forces and torques acting on a vehicle, comprising steps: measuring signals from acceleration sensors which are fitted in longitudinal, and vertical alignment, to one or more selected points on the vehicle (see column 5, lines 16-43), evaluating signals including at least one of the rolling, pitching or yaw velocity and including at least one of the rolling, pitching or yaw acceleration (see column 5, lines 16-43), and applying a mathematic model of the vehicle in which forces and torques acting on the vehicle or selected components of these forces and torques are determined from the sensor signals (see column 6, line 35 to column 7, line 37). Hagan does not disclose measuring signals from acceleration sensors which are fitted in transverse alignment. However, Faye et al. disclose measuring signals from acceleration sensors which are fitted in transverse alignment (see column 4, lines 22-50; column 7, lines 16-54; and column 10, lines 34-54). Hagan also does not disclose evaluating signals which represent the spatial angular velocity. However, Welch et al. disclose evaluating signals which represent the spatial angular velocity of the vehicle and its time derivative (see column 7, lines 11-27). Hagan does not disclose summing tire contact forces. However, Isono et al. disclose summing the tire contact forces on a first side of the vehicle, and determining when summed value falls below a threshold at the current point of time or in a time extrapolation of the determined course of signals relating to the summed forces (see at least

[0504] through [0510]; [0534] through [0538]; [0557] through [0564]; [0635] through [0640]; [0654] through [0658]; and [0814] through [0819]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Hagan by combining measuring signals from acceleration sensors which are fitted in transverse alignment, and evaluating signals which represent the spatial angular velocity for stabilizing a vehicle to prevent vehicle rollover; and combining determining summing tire contact forces of vehicle side for accurately detecting force acting on the vehicle to assure vehicle stability.

As per claim 10, Hagan discloses measuring signals includes using signals from a yaw rate sensor fitted to the vehicle (see column 5, lines 16-43).

Also, as per claim 11, Hagan discloses a model based logical operation of the measuring signals of several acceleration sensors, which are fitted to at least two different points on the vehicle (see column 5, lines 16-43).

6. Claims 12-13, are rejected under 35 U.S.C.103(a) as being unpatentable over Hagan (6,327,526), Faye et al. (6,494,281), Welch et al. (5,922,039), and Isono et al. (US 2005/0012501 A1) as applied to claim 9 above, and further in view of Dunwoody et al. (5,825,284).

As per claim 12, Hagan, Faye et al., Welch et al., and Isono et al. do not disclose selected components of wheel forces or selected sums of wheel force. However, Dunwoody et al. disclose calculating from the determined forces and torques that act on the vehicle wheel forces, or selected components of the wheel forces, or selected sums of wheel force components (see column 8, line 41 to column 9, line 17; and column 9, line 55 to column 10, line 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

modify the teach of Hagan, Faye et al., Welch et al., and Isono et al. by combining wheel forces, or selected components of wheel forces or selected sums of wheel force components are calculated from the determined forces and torques that act on the vehicle to calculate the total vehicle load and thereby allow the vehicle operator to avoid the vehicle rollover.

Also, as per claim 13, Dunwoody et al. disclose calculating wheel force components or sums of wheel force components directly from the measuring signals (see column 9, line 19 to column 10, line 8).

7. Claim 14, is rejected under 35 U.S.C.103(a) as being unpatentable over Hagan (6,327,526), Faye et al. (6,494,281), Welch et al. (5,922,039), and Isono et al. (US 2005/0012501 A1) as applied to claim 9 above, and further in view of Schiffmann (6,192,305).

As per claim 14, Faye et al. disclose processing at least one transverse acceleration signal, and one vertical acceleration signal in the mathematic model for determining an imminent risk of rollover (see column 4, lines 22-50; column 7, lines 16-54; and column 10, lines 34-54). Faye et al. do not disclose roll angle. However, Schiffmann discloses processing at least one roll angle in the mathematic model for determining an imminent risk of rollover (see column 2, lines 3-26; and column 13, lines 24-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Hagan, Faye et al., Welch et al., and Isono et al. by combining processing at least one roll angle in the mathematic model for accurately predicting rollover condition of the vehicle.

8. Claim 15, is rejected under 35 U.S.C.103(a) as being unpatentable over Hagan (6,327,526), Faye et al. (6,494,281), Welch et al. (5,922,039), Isono et al.

(US 2005/0012501 A1), and Schiffmann (6,192,305) as applied to claim 14 above, and further in view of Dunwoody et al. (5,825,284).

As per claim 15, Hagan, Faye et al., Welch et al., Isono et al., and Schiffmann do not disclose at least one of sum of tire contact forces for the left and right side of the vehicle is determined. However, Dunwoody et al. disclose at least one of tire contact forces for the left side and another sum of tire contact forces for the right side of the vehicle is detected (see column 9, line 19 to column 20, line 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Hagan, Faye et al., Welch et al., Isono et al., and Schiffmann by combining at least one of tire contact forces for the left side and another sum of tire contact forces for the right side of the vehicle is detected to determine vehicle load on each side of vehicle, therefore, can avoid the possibility rollover condition of the vehicle.

Conclusion

9. Applicant's amendment filed on 2/10/05 has been fully considered. Upon updated search, the new ground of rejection has been set forth as above.

The allowance of claim 16 in last office action has been withdrawn. The new rejection as above. Isono et al. is the new reference for this rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 571-272-6968. The examiner can normally be reached on M-F (6:30 AM-4:00 PM), off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
Dalena Tran

April 29, 2005